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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application of: Rose *et al.*

Confirmation No.: 3581

Serial No.: 10/032,157

Group Art Unit: 2812

Filed: December 21, 2001

Examiner: Not Yet Assigned

For: PHASE SHIFT DEVICE IN
SUPERCONDUCTOR LOGIC

Attorney Docket No.: 11090-045-999

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INFORMATION DISCLOSURE STATEMENT

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

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In accordance with the duty of disclosure provisions of 37 C.F.R. §1.56, there is hereby provided certain information which the Examiner may consider material to the examination of the subject U.S. patent application. It is requested that the Examiner make this information of record if it is deemed material to the examination of the application.

1. Enclosures accompanying this Information Disclosure Statement are:

- 1a. ☒ A list of all patents, publications, applications, or other information submitted for consideration by the office.
- 1b. A legible copy of :
- ☒ Each U.S. patent application publication and U.S. and foreign patent;
 - ☒ Each publication or that portion which caused it to be listed on the PTO-1449;
 - ☒ For each cited pending U.S. application, the application specification including the claims, and any drawing of the application, or portion of the application which caused it to be listed on the PTO-1449 including any claims directed to that portion;
 - ☒ all other information or portion which caused it to be listed on the PTO-1449.
- 1c. ☐ An English language copy of search report(s) from a counterpart foreign application or PCT International Search Report.
- 1d. ☐ Explanations of relevancy (ATTACHMENT 1(d), hereto) or English language abstracts of the non-English language publications.

2. ☒ This Information Disclosure Statement is filed under 37 C.F.R. §1.97(b):

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- ☐ Within three months of the filing date of a national application other than a continued prosecution application under §1.53(d);
 - ☐ Within three months of the date of entry of the national stage as set forth in §1.491 in an international application;
 - ☒ Before the mailing of the first Office action on the merits;
 - ☐ Before the mailing of a first Office action after the filing of a request for continued examination under §1.114.
3. ☐ This Information Disclosure Statement is filed under 37 C.F.R. §1.97(c) after the period specified in 37 C.F.R. §1.97(b), but before the mailing date of any of a final action under 37 C.F.R. §1.113, a notice of allowance under 37 C.F.R. §1.311 or an action that otherwise closes prosecution in the application.

(Check either Item 3a or 3b)

- 3a. ☐ The Certification Statement in Item 5 below is applicable. Accordingly, no fee is required.
- 3b. ☐ The \$180.00 fee set forth in 37 C.F.R. §1.17(p) in accordance with 37 C.F.R. §1.97(c) is:
- ☐ enclosed
 - ☐ to be charged to Pennie & Edmonds LLP Deposit Account No. 16-1150.

(Item 3b to be checked if any reference known for more than 3 months)

4. ☐ This Information Disclosure Statement is filed under 37 C.F.R. §1.97(d) after the period specified in 37 C.F.R. §1.97(c), but on or before the date of payment of the issue fee.

The \$180.00 fee set forth in 37 C.F.R. §1.17(p) is:

- ☐ enclosed.
- ☐ to be charged to Pennie & Edmonds LLP Deposit Account No. 16-1150.

The Certification Statement in Item 5 below is applicable.

5. ☐ Certification Statement *(applicable if Item 3a or Item 4 is checked)*

(Check either Item 5a or 5b)

- 5a. ☐ In accordance with 37 C.F.R. §1.97(e)(1), it is certified that each item of information contained in this Information Disclosure Statement was first cited in a communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this Information Disclosure Statement.
- 5b. ☐ In accordance with 37 C.F.R. §1.97(e)(2), it is certified that no item of information contained in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application and, to the knowledge of the undersigned after making reasonable inquiry, was known by any individual designated in 37 C.F.R. §1.56(c) more than three months prior to the filing of this Information Disclosure Statement.
6. ☐ This application is a continuation application under 37 C.F.R. §1.60 or §1.53(b) or (d).

(Check appropriate Items 6a, 6b and/or 6c)

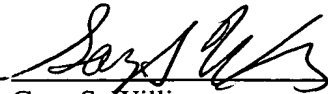
- 6a. ☐ A Petition to Withdraw from issue under 37 C.F.R. §1.313(b)(5) is concurrently filed herewith.
- 6b. ☐ Copies of publications listed on Form PTO-1449 from prior application Serial No. __, filed on __, of which this application claims priority under 35 U.S.C. §120, are not being submitted pursuant to 37 C.F.R. §1.98(d).
- 6c. ☐ Copies of the publications listed on Form PTO-1449 were not previously cited in prior application Serial No. __, filed on __, and are provided herewith.
7. ☐ This is a Supplemental Information Disclosure Statement. (Check either Item 7a or 7b)
- 7a. ☐ This Supplemental Information Disclosure Statement under 37 C.F.R. §1.97(f) supplements the Information Disclosure Statement filed on __. A bona fide attempt was made to comply with 37 C.F.R. §1.98, but inadvertent omissions were made. These omissions have been corrected herein. Accordingly, additional time is requested so that this Supplemental Information Disclosure Statement can be considered as if properly filed on __.
8. ☐ In accordance with 37 C.F.R. §1.98, a concise explanation of what is presently understood to be the relevance of each non-English language publication is:

(Check Item 8a, 8b, or 8c)

- 8a. ☐ satisfied because all non-English language publications were cited on the enclosed English language copy of the PCT International Search Report or the search report from a counterpart foreign application indicating the degree of relevance found by the foreign office.
- 8b. ☐ set forth in the application.
- 8c. ☐ enclosed as an attachment hereto.
9. ☒ The Commissioner is authorized to charge any additional fee required or credit any overpayment for this Information Disclosure Statement and/or Petition to Pennie & Edmonds LLP Deposit Account No. 16-1150.
10. ☒ No admission is made that the information cited in this Statement is, or is considered to be, material to patentability nor a representation that a search has been made (other than a search report of a foreign counterpart application or PCT International Search Report if submitted herewith). 37 C.F.R. §§1.97(g) and (h).

Respectfully submitted,

Date: March 3, 2003



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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

Sheet

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of

2

Application Number

10/032,157

Filing Date

12/21/2001

First Named Inventor

Geordie Rose

Art Unit

2812

Examiner Name

Not Yet Assigned

Attorney Docket Number

11090-045-999

U.S. PATENT DOCUMENTS

Examiner Initials	Cite No. ¹	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number - Kind Code ² (if known)			
	AA	US-5,917,322	06-29-99	Gershenfeld and Chuang	
	AB	US-6,495,854 B1.	12-17-02	Newns and Tsuei	
	AC	US-6,459,097 B1	10-01-02	Zagoskin	
	AD	US-6,504,172 B2	01-07-03	Zagoskin et al.	RECEIVED
	AE	US-60/257624	01-22-00	Amin et al.	MAR 13 2003
	AF	US-60/316,134	8-29-01	Zagoskin et al.	OFFICE OF PETITIONS
	AG	US-10/006,787	N/A	Tzalenchuk et al.	

FOREIGN PATENT DOCUMENTS

Examiner Initials	Cite No. ¹	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T ⁶
		Country Code ³ - Number ⁴ - Kind Code ⁵ (if known)				

OTHER ART (Including Author, Title, Date, Pertinent Pages, Etc.)

	AH	Bruder et al., "Tunnel Junctions of Unconventional Superconductors," <i>Physical Review B</i> 51, pp. 12904-12907 (1995). ✓
	AI	R. de Bruyn Ouboter et al., "Multi-Terminal SQUID Controlled by the Transport Current," <i>Physica B</i> 205, pp. 153-162 (1995). ✓
	AJ	R. de Bruyn Ouboter and A.N. Omelyanchouk, "Four-Terminal SQUID: Magnetic Flux Switching in Bistable State and Noise," <i>Physica B</i> 254, pp. 134-140 (1998). ✓
	AK	David P. DiVincenzo, "The Physical Implementation of Quantum Computation," <i>Scalable Quantum Computers: Paving the Way to Realization</i> (2001). ✓
	AL	I. Iguchi and Z. Wen, "Experimental Evidence for a D-Wave Pairing State in YBa ₂ Cu ₃ O _{7-y} from a Study of YBa ₂ Cu ₃ O _{7-y} /Insulator/Pb Josephson Tunnel Junctions," <i>Physical Review B</i> 49, pp. 12388-12391 (1994). ✓
	AM	L. Ioffe and V. Geshkenbein, "Environmentally Decoupled sds-Wave Josephson Junctions for Quantum Computing," <i>Nature</i> 398, pp. 679-681 (1999). ✓
	AN	Joyez et al., "Observation of Parity-Induced Suppression of Josephson Tunneling in the Superconducting Single Electron Transistor," <i>Physical Review Letters</i> 72, pp. 2458-2461 (1994). ✓

AO	Komissinski et al., "Observation of the second harmonic in superconducting current-phase relation of Nb/Au/(001)YBa ₂ Cu ₃ O _x Heterojunctions," <i>Europhysics Letters</i> , pp. 1-11 (2001).
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AQ	Mooij et al., "Josephson Persistent-Current Qubit," <i>Science</i> 285, pp. 1036-1039 (1999).
AR	Ryazanov et al., "Coupling of Two Superconductors Through a Ferromagnet: Evidence for a π -Junction," <i>ArXiv.org: cond-mat/0008364</i> , pp. 1-6 (2000).
AS	Schulz et al., "Design and Realization of an all d-Wave dc π -Superconducting Quantum Interference Device," <i>Applied Physics Letters</i> 76, pp. 912-914 (2000).
AT	Smilde et al., "Y-Ba-Cu-O/ Au/Nb Ramp-Type Josephson Junctions," <i>IEEE Transactions on Applied Superconductivity</i> 11, pp. 501-504 (2001).
AU	Sun et al., "Direction of Tunneling in Pb/I/YBa ₂ Cu ₃ O _{7-x} Tunnel Junctions," <i>Physical Review B</i> 54, pp. 6734-6741 (1996).
AV	Tafari et al., "Feasibility of Biepitaxial YBa ₂ Cu ₃ O _{7-x} Josephson Junctions for Fundamental Studies and Potential Circuit Implementation," <i>Physical Review B</i> 62, pp. 14431-14438 (2000).
AW	B.J. Vleeming, "The Four-Terminal SQUID," Ph.D. Dissertation, Leiden University, The Netherlands, (1998).
AX	Wollman et al., "Evidence for $d_{x^2-y^2}$ Pairing from the Magnetic Field Modulation of YBa ₂ Cu ₃ O ₇ -Pb Josephson Junctions," <i>Physical Review Letters</i> 74, pp. 797-800 (1995).
Examiner Signature	Date Considered

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Applicant's unique citation designation number (optional). ² See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶ Applicant is to place a check mark here if English language Translation is attached.

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